

**Comments of John Van Mol, Staff Director
Tennessee Valley Industrial Committee
To the TVA Board of Directors Listening Session
On Energy Efficiency and Demand Response**

**Knoxville, Tennessee
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Good afternoon, and I appreciate the opportunity to be here today on behalf of the Tennessee Valley Industrial Committee to share some experiences and views on these timely topics.

First a word about the organization. TVIC is composed of 33 different companies at about 50 locations throughout the Tennessee Valley, and all of these share the characteristic of purchasing electricity directly from TVA in at least one of their locations. Many of the companies are well-known because the company name is the name of an equally famous brand name, such as Alcoa, duPont or Weyerhaeuser. Others are less well known to the general public, but manufacture materials that are used on or in all manner of consumer products, from toothpaste to tires, from paint to polymers and from automobiles to the paper for local newspapers all across the Tennessee Valley. The output of TVIC member companies leaves the plants in a number of forms, from primary metals like steel, aluminum and a variety of alloys to food ingredients, and from chemicals of all kinds to lumber and other forest products.

The entire direct-served industrial class of TVA customers—the members of TVIC plus a few others—used approximately 17 percent of the electricity TVA sold during last fiscal year. For that energy, these customers paid more than \$1.2 billion, up more than \$150 million for about the same amount of electricity the prior year. With the announced 7% base rate increase scheduled to go into effect in April, plus the rapid escalation in the Fuel Cost Adjustment, both experienced thus far and forecast, it looks like in 2008 these customers are in for a huge increase. The prospect of a large percentage increase in two years in a major product component—with no assurance whatsoever of being able to raise prices to cover it—is not a pleasant thought for the industrial sector, as I am sure you are aware.

So it is more than apparent that industrial energy efficiency and demand response are not just kinder to the environment and good examples of corporate social responsibility, they can have a tremendous economic impact as well.

When it comes to energy efficiency and demand response, TVIC members are definitely green. Only in this case, the green represents good energy resource stewardship, AND it represents the green of a lot of money.

Our view is that energy efficiency and demand response programs ought to be viewed as separate issues and separate programs—but when combined can add up to good, mutually beneficial results for both the customers and the utility. For purposes of our comments, we would define energy efficiency as using only the amount of energy that is absolutely necessary to get the industrial job done, and then getting the most extra benefit possible out of that same amount of energy. Demand response would be described for our purposes as managing demand so as to make the best, most efficient use of dollars and resources. Demand response is especially important when TVA is short of generation resources. Higher than necessary peaks force TVA to run its most expensive generators, and also to purchase power from outside the Valley when those prices are most expensive.

I will give a few examples of each so you will have a flavor for where industry is on these issues, and then perhaps have a suggestion or two that relates to policy.

First, energy efficiency in the industrial setting is taken extremely seriously in the direct-served group, because this group has a disproportionately high percentage of overall production cost tied up in electricity and other forms of energy. In some cases, electricity is the raw material for production and amounts to more than half of the product cost.

One customer whom I won't name because their energy efficiency schemes are proprietary provided this example. The plant burns coal to make steam, and uses the energy multiple times. The exhaust gases from the coal boilers are used to assist in drying operations. The hot dryer exhausts usually heat some other process – either finish drying, heat for an evaporator, or some other lower-temperature duty. The boiler steam is used in the company's processes at the generated pressure and the condensate—lower pressure steam—resulting from that use is used again in a lower heat

duty. And even after this the hot condensate is typically crossed with a cooler process stream that requires some heating. The steam might be used in a steam tube dryer, hot condensate from the dryer might be used to drive a multiple effect evaporator, and the evaporator condensate might be used to heat up dryer feed tanks.

This energy efficiency is a result of outstanding design built into the plant's original configuration. But in a time of rapidly increasing costs of electricity and other forms of energy, the payback on additional capital investment can be quick. In one company's potential energy efficiency plan, it took nearly \$14 million in investment. But the payback occurred in just 1.62 years. Heating and lighting system improvements had the longest payback period, from three to four years, perhaps indicating that rising prices overcame excellent initial design.

Investment in new technology can also play a tremendous role in energy efficiency. One plant in Kentucky spent millions of dollars on a process conversion and expansion—but the net result was a 30% production increase for the same kilowatthour input.

Another company, this one in alloys production, retrofitted an older plant to capture waste heat from its furnace to dry the moisture from raw materials before adding them to the furnace. This reduced energy consumption on one product line by 5 percent, and in the case of this product line, that meant nearly half a million dollars in annual savings.

The bottom line for industry is that energy efficiency is an integral part of the bottom line. Industry will continue to make significant investments for further improvements—but there is a limit. While the energy efficiency investment payback is quicker when prices of electricity are high, like today, TVA must maintain competitive industrial electricity pricing or there is no need for efficiency because the production and the jobs simply go away—to a sister plant in another part of the country, or offshore.

Although there is plenty of financial and other incentives for energy efficiency, TVA might consider an internet-based, voluntary system of sharing best practices among industrial energy users in the Tennessee Valley. That way, those companies that were willing to

share their expertise could do so with smaller industries that might not have the staff or budget to milk every Btu out of their energy consumption. This is admittedly the province of engineers, and TVIC has not researched what other, similar programs might be out there--so this idea should be researched before TVA commits to a program that might be a duplication.

In the area of demand response, TVA and industrial customers-- both direct and distributor served -- already have a pretty substantial peak shaving program in effect through interruptible contracts, and price responsive loads. In the case of interruptible power, the customer gets a slightly lower price in exchange for the potential of being interrupted. The price responsive customers have a product that allows them to self-interrupt production when prices are the highest.

There are 230 customers who have contracted for up to 2770 megawatts of interruption on five minutes notice. There are 55 customers who have contracts to interrupt their power production by

1,300 megawatts (the equivalent of a nuclear unit) on 60 minutes notice from TVA.

There are 116 TVA and distributor customers on what is called “market day” products. In exchange for a small credit on their bills, these customers are subject to TVA calling a “market day” when prices to TVA for purchased power are the highest. If the customer chooses to run through any of these 12 days under the contract, the company has to pay market prices for the electricity as opposed to TVA’s published rates.

The primary beneficiaries of energy efficiency could be considered to be the individual customer and the environment, in other words less energy used, less cost to the customer and less stress on the environment. But there is no question the entire TVA power system and all of its customers benefit from interruptible power arrangements to industry. These contracts and subsequent interruptions decrease the amount of electricity TVA has to generate or purchase at peak times, when costs are the highest and prices on the open market are the highest. It means lower costs of fuel and

purchased power, which means lower Fuel Cost Adjustment prices than would otherwise have been the case. And the FCA prices, as you know, are paid on every kilowatthour used by all customers, not just those used during the peak hours.

This brings me to a policy matter, a basic inequity in the current TVA rate structure which we believe TVA has plans to rectify by October of next year. This is the so-called end use wholesale rate paid by TVA distributors for electricity, in which distributors are charged a flat rate per kilowatthour, no matter what time of the day it is used. Industry for the most part operates at a steady state, using the same level of electricity in order to maximize production and efficiency, but many are willing to take interruptions during the time of power demand peaks that are caused by residential and commercial customers. Certain of TVA's industrial rates give incentives for large customers to get off the system at peak times. The current rate structure for distributors, however, gives no incentive for efficiency or peak-shaving to either TVA distributors or the commercial and residential customers they serve. We would

simply encourage TVA to move ahead with its plans for this rate change.

There is another point to be made on the balance required when designing electric rates for industry. While the price break for interruptions is small in our view but welcome, there is no way to cut our way to prosperity. The jobs and economic livelihoods of hundreds of thousands of Tennessee Valley residents are dependent in large measure on the cost of electricity to industry, and we hope the TVA board will give due weight to its economic development responsibilities under the TVA Act when deciding on rate redesign in the near future.

A second suggestion relates to the cost of new energy efficiency programs designed for the various customer classes. In simple terms, TVA should not build into industrial rates the cost of energy efficiency programs designed for residential and/or commercial customers. We believe this would be extremely unfair when all non-residential customers are already in effect paying for a residential hydro preference on water you don't have, resulting in a higher fuel

cost adjustment that industry along with everyone else also gets to pay. It is the unfortunate circumstance that during a drought such as the one we currently are experiencing, the job-producing sector of the economy gets hit perhaps the hardest by TVA rate policies.

Thank you for your time, and if there are questions I will attempt to respond to them.

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